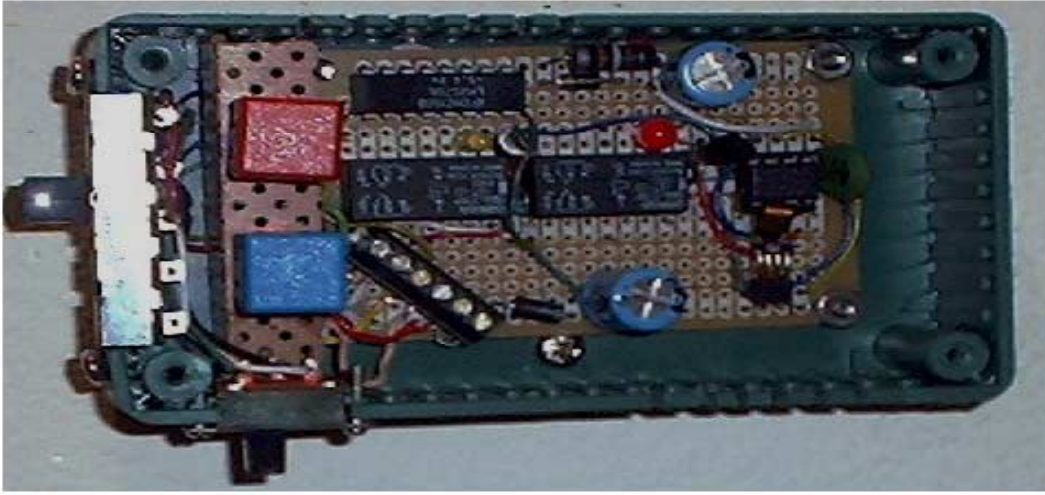


An Intelligent Humidity Compensated Thermostat

Motorola Flash Innovation 2003 Contest Project Number F2016



My wife and I have a problem – we can't sleep well at night.

Since I am an engineer and a hobbyist, and my wife is an amateur meteorologist, here is our solution -- an intelligent, humidity compensated thermostat. Using a humidity and temperature sensor from Sensirion, it periodically reads both the temperature and the relative humidity of the inside air. Using a pre-programmed table, it compares these temperatures to what we find comfortable, and if it is too warm and humid, turns on the air conditioning. If too cool and dry, it turns on the heat. This should be just the ticket.

But what if we want it a little warmer? After all, different people have different ideas of what is comfortable? Simple, have two buttons, UP and DOWN. If it is too warm, a punch of the DOWN button should help cool things off. A punch of the UP button means give us a little heat. The best thing is, since this is an intelligent thermostat, it remembers what you thought was comfortable, and saves that information. As you use it, it learns what you like, and adjusts its tables accordingly.

So here is my project – a simple, intelligent thermostat that takes into account the humidity as well as the temperature, and adjusts itself to your preferences. Using a great little intelligent sensor from Sensirion, an 68HC908, and a couple of relays and switches, I get wonderful comfort that takes the marine layer and hot showers in stride, keeping my wife and I warm and comfortable day and night.

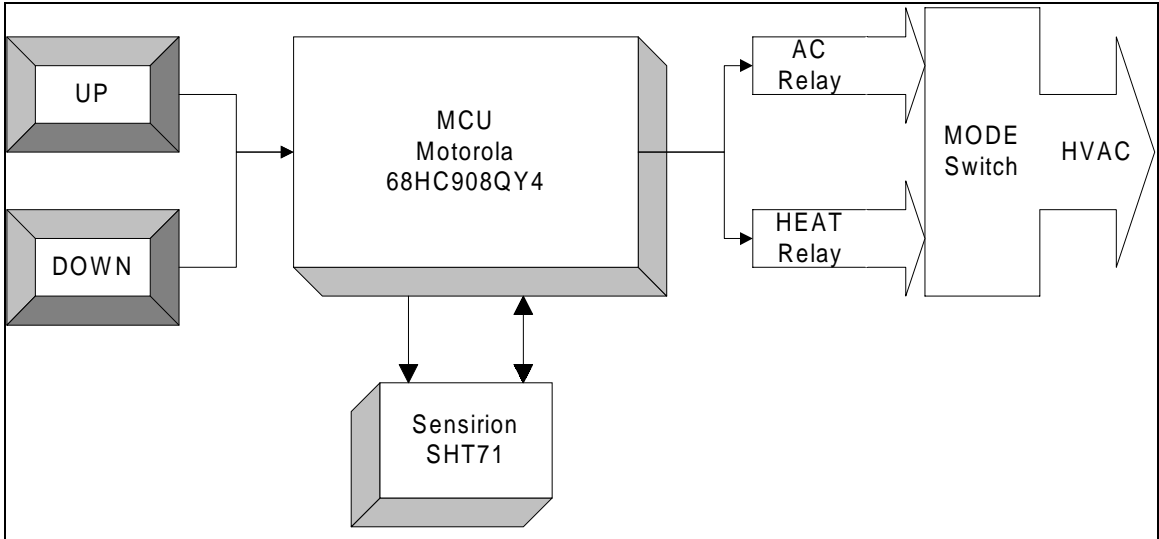


Figure 1: Block Diagram of Intelligent Humidity Compensated Thermostat

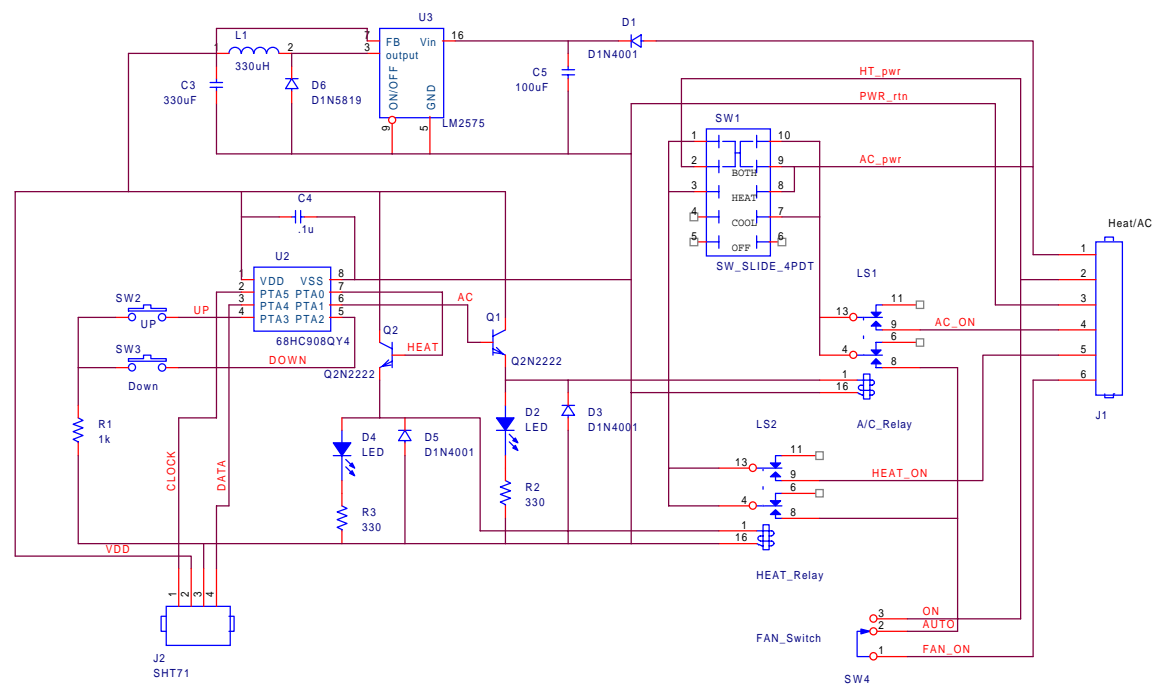


Figure 2: Schematic of Intelligent Humidity Compensated Thermostat